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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/703,477	10/31/2000	Takashi Miyoshi	16787-04445	2188

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EXAMINER

WINDER, PATRICE L

ART UNIT	PAPER NUMBER
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2145

DATE MAILED: 09/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/703,477	Applicant(s) MIYOSHI ET AL.	
	Examiner Patrice Winder	Art Unit 2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-26 and 29-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9, 10, 12-15, 26 and 29-31 is/are allowed.
- 6) ☒ Claim(s) 1-8 and 16-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code 103 not included in this action can be found in a prior Office action.
2. Claims 1-8, 16-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drott et al., USPN 6,170,025 (hereafter referred to as Drott) in view of Brown et al., USPN 6,148,414 (hereafter referred to as Brown).
3. Regarding claim 1, Drott taught a method for communicating transaction request information from a PCI environment over a network (column 3, lines 3-9), the method comprising:
 - receiving a number of transaction requests from the PCI environment (column 18, lines 29-37);
 - determining a destination node ID and a destination address associated with each transaction request (column 18, lines 38-42);
 - maintaining an order of data associated with each of the transaction requests (column 12, lines 19-22);
 - for each transaction request, assembling a packet including a request, a destination node ID and a destination address (column 13, lines 2-13, column 18, lines 43-52); and
 - transmitting the packet to the network (column 18, lines 53-54). Drott does not specifically teach maintaining an order of the transaction requests received. However, Brown taught maintaining an order of the transaction requests received (column 17,

lines 1-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made that incorporating Brown's method for maintaining for order of transaction requests in Drottar's method for communication transaction request information from a PCI environment over a network would have improved system efficiency. The motivation would have been to provide better arbitration of the transaction requests between the peer PCI devices.

4. Regarding dependent claim 2, Drottar taught the determining step includes translating the destination node ID and destination address from a PCI address space of the PCI environment (column 18, lines 38-42).

5. Regarding dependent claim 3, Drottar taught the determining step includes mapping a remote DMA space from a logical node ID included in a PCI address space of the PCI environment, the DMA space corresponding to a number of remote memory devices (when transaction is RDMA read or RDMA write, column 14, column 18, lines 38-42).

6. Regarding dependent claim 4, Brown taught the step of maintaining the order of the transaction requests received is accomplished using FIFO queue structures (column 17, lines 1-11). Drottar taught maintaining the order of data associated with each of the transaction requests is accomplished using FIFO queue structures (column 12, lines 19-22).

7. Regarding dependent claim 5, Drottar taught one of the transaction requests received from the PCI environment is an original read request (column 20, lines 13-15), the method further comprising:

responsive to not having received the read data associated with the original read request, issuing a retry reply to the device in response to receiving a retry of the original read request from the device thereby requiring the device to continue to retry the original read request (column 19, lines 46-49, column 20, lines 41-44); and

responsive to receiving the read data associated with the original read request, and responsive to receiving a retry of the original read request from the device, issuing the read data to the device (column 20, lines 29-32, column 20, lines 41-44).

8. Regarding dependent claim 6, Drottar taught further comprising: generating a force read retry signal that triggers the issuing of the retry reply to the device (column 20, lines 29-32, 41-44).

9. Regarding dependent claim 7, Drottar taught further comprising: determining a number of transaction requests that have a same destination node (column 20, lines 20-24).

10. Regarding dependent claim 8, Drottar taught the determining step includes deriving the destination node ID from a node ID table, each entry in the table indexed according to a logical node ID included in a PCI address space of the PCI environment (column 18, lines 38-42).

11. The language of claims 16-22 and 25 is substantially the same as previously rejected claims 1-5. Therefore, claims 16-22 and 25 are rejected on the same rationale as previously rejected claims 1-5.

12. Regarding dependent claim 23, Drottar taught in response to the read data associated with the original read request not having been received by the transfer unit

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(Figure 9 performed for each received request, retry requests included), the transfer unit signals the interface with a force read retry signal that indicates to the interface that the transfer unit has not received the read data associated with the original read request (column 19, lines 46-49, column 20, lines 27-32), the force read retry signal causing the interface to issue a retry reply to the device in response to receiving a retry of the original read request from the device thereby requiring the device to continue to retry the original read request (column 20, lines 29-32, 41-44).

13. Regarding dependent claim 24, Drottar taught in response to the read data associated with the original read request having been received by the transfer unit, the transfer unit signals the interface by suppressing the force read retry signal thereby indicating to the interface that the transfer unit has received the read data associated with the original read request (read retry not issued, column 20, lines 24-40).

Response to Arguments

14. Applicant's arguments filed May 17, 2004 have been fully considered but they are not persuasive.

15. Applicant argues – “Although Drottar discloses ‘a method of executing a locked transaction over a distributed computer system to a remote located I/O resource’ (col. 1, lines 60-65), Drottar does not disclose or suggest ‘maintaining an order of data associated with each of the transaction requests,’ as claimed ... Rather, Drottar discloses at col. 12, lines 19-22 ordering packets before transmitting them to the destination.”

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a. Drottar taught that packets are "wrapped" from the transaction requests (column 3, lines 12-17) and it is worth noting the claim language is silent as to what data specifically associated with the transaction requests is ordered. Applicant admits in his argument that Drottar teaches ordering packets and in Drottar's case the packets are associated with the transaction requests.

16. Applicant argues – "Maintaining an order of the data associated with each transaction request before the packet is assembled is different from maintaining the order of the packets that have already been assembled to be delivered to a destination address."

b. No specific order is given to the steps of applicant's claim. In fact, the scope of the claim does not preclude many of the steps happening simultaneously. For this reason, it would seem that applicant is arguing limitations not in the claims.

17. Applicant argues – "Thus, Brown merely maintains a queue of lock requests, whereas the claimed invention maintains an order of data associated with each transaction request."

c. Brown is cited as teaching "maintaining an order of the transaction requested received" at column 17, lines 1-11.

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18. Applicant argues – “The reference, however, does not disclose any specifics on how the destination node ID and address are determined. Thus, the reference does not disclose or suggest ‘mapping a remote DMA space from a logical node ID included in a PCI address space,’ as claimed (emphasis added).”

d. The claim language recites “translation” to a “destination node ID”.

Therefore, it would have been required that Drottar teach how to determine the “destination node ID”. However, applicant admits that “[t]he cited portion of Drottar makes it clear that Drottar determines a destination address by mapping the PCI address of the transaction to a specific network address.” Applicant ignores that the mapping is done utilizing a local I/O memory map in Drottar’s disclosure on column 18, lines 38-42. The local I/O map provides a logical mapping from the PCI space, see column 16, line 65 – column 17, line 13.

19. Applicant argues – “...[N]owhere does Drottar disclose ‘determining a number of transaction requests that have a same destination address,’ as claimed.”

e. The examiner disagrees applicant once again is not considering the conclusion of the cited passage, which is “(indicated by a match)”. When there is a “match” with any of the pending transaction requests, a number of transaction requests have a same destination address.

Allowable Subject Matter

20. Claims 9-10, 12-15, 26 and 29-31 are allowed.

21. The following is an examiner's statement of reasons for allowance:

Claims 9-10, 12-15, 26 and 29-31 are allowable over the prior art of record for in light of applicant's arguments on pages 18-19.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

22. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrice Winder whose telephone number is 703-305-3938. The examiner can normally be reached on Monday-Friday, 10:30 am-7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Harvey can be reached on 703-305-9705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Patrice Winder
Primary Examiner
Art Unit 2145

September 7, 2004